

A NEW BEMBICINE WASP RELATED TO STICTIELLA
TENUICORNIS (FOX), WITH CERTAIN PHYLOGENETIC
CONSIDERATIONS

(Hymenoptera: Sphecidae)

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Most of the specimens in museum collections under the name *Stictiella tenuicornis* (Fox) have been found to represent a new species which is here described in connection with publication of biological data elsewhere on the genus *Stictiella*.

***Stictiella clypeata* Gillasp, new species**

Stictiella tenuicornis, Parker, 1917:47 (part): 1929 (part).

Female.—Length 14–19 mm. *Color* black except lemon-yellow maculation as follows: posterior orbits exceeding inner angles of compound eyes but not meeting at middle of vertex; upright V above frontal pit with upwardly widening, outwardly rounded arms receiving anterior ocellus, sometimes extending somewhat ventrad along midline toward socketal maculation; maculate enclosures of sockets except above in some cases, sometimes attenuated above along midline; broad anterior orbits narrowing unevenly to eye margins above at vertex; clypeus, labrum and scape entirely; flagellar segments ventrally except apical segments brownish; pronotum except median area posterior to streptaular suture and smaller lateral spots; mesonotum laterally on scutum and in anteriorly arcuately emarginate band across scutellum (latter margined with black posteriorly) outlining black shield containing tri-partite or complete U formed of lateral clavate marks and often medially notched posterior bar; tegulae; postcutellum except narrow anterior crescent; propodeal triangle except basal crescent; posterior face, postero-lateral angles and sides of propodeum except extra-triangle wedges broadest at spiracles, forming a V; metepisterna, hypopimeral areas and mesepisterna except narrowly along sutures and pre-mesocoxal spot on mesepisterna; coxae and trochanters except base of some; femora except narrowly above (rarely entirely yellow); tibiae except narrowly below and tarsal segments except distitarsi often dusky above; first tergite except anterior face and squarish-lobate dorso-median posterior extension from it, which may reach the transverse gradular swell and there exhibit tri-radiate tendency, indicating (in combination with apical black) paired elliptic or ovate maculae which are fused mesally and indistinct in this species; tergites 2–6 with elements of this pattern usually discernible, but anterior dorso-median lobe transversely barlike before gradulus, often basally detached, also medially divided or tending to be so on tergites 3–6, never so on tergite 2, and tergite 6 without apical black; sternite 1 except narrowly at base; sternites 2–6 except basal arc, progressively more strongly developed toward rear, trilobate on sternite 6. *Vestiture* of clypeus and anterior orbits consisting of very dense, flattened, silvery-appressed hairs, completely concealing the integumental surface. *Head* wider than

thorax at posterior pronotal lobes (1.08:1.00); vertex and temples weakly developed behind large compound eyes which bulge laterally beyond them; vertex moderately depressed on either side of median elevation which attains but scarcely exceeds upper level of compound eyes; lateral ocelli separated from compound eyes by less than their own distance apart (1.0:1.2), forming approximately a 65° angle with anterior ocellus; latter a glabrous, flattened, brownish, mostly light-pervious (except intrusive black opacity from below) surface, defined above by a distinct, horseshoe-shaped sutural arch, glabrous surface extending beyond open end of arch below without evident sutural delimitation from frontal integument (confirmable by slide mounts), anterior ocellus including sutural arch and maximum extent of glabrous area below one-third longer than broad (1.6:1.0), enclosed in mound which appears U-shaped but is weakly closed above, the crest describing an oval with length twice the width; frontal line weakly impressed to frontal pit, weakly elevated below; intersocketal carina arising at middle level of antennal sockets, distinct to apex of clypeus. *Clypeus* width more than half of head width (1.0:2.3), wider than distance between compound eyes at vertex (1.00:0.90), compound eyes therefore appearing to diverge below, with least interocular distance (between antennal sockets and frontal pit) more than one-third of head width (1.0:2.6); surface of clypeus not strongly arched or so protuberant as to exceed plane of intersocketal carina when viewed laterally, distal margin distinctly receding; basal third of clypeus with a planate area on either side, separated from remainder of clypeus by a distinct angle; epistomal suture distant from lower level of antennal sockets by one-half of intersocketal distance, almost straight or slightly elevated between subantennal angles, which are weak, sloping downward slightly to tentorial angles, base of clypeus broadly subtruncate between tentorial angles, lateral sections of epistomal suture curving outward to compound eyes, recurving to lateral angles. *Mouthparts* with labrum longer than basal width (1.2:1.0); maxillae apicad of palpal base in length equal to about one-half of head width (1.00:1.96); maxillary palpi with six segments, labial palpi with four. *Antennae* with scape moderately stout, length about three times greatest width. *Thorax* with punctation of mesoscutum and scutellum uniform; propodeal triangle formed by inwardly bowed, almost rectilinear sutures, converging on posterior face of propodeum at about a 60° angle. *Legs* moderately slender; distitarsi without strong erect bristles ventrally and with large, bulbous pulvilli extending one-third or one-half length of claws; claws all similar, uniform in curvature, outer claw of each pair very little longer. *Wings* beyond humeral plate two and one-half times thorax width, measured at posterior lobes (2.53:1.00); second cubital cell subrectangular, wider than high. *Abdomen* with tergites 2-3 having smallest lateral punctures, exclusive of those in unpigmented marginal area, in same general size and density range as those of subsutural area of first tergite, but less extensive in area on tergite 3; tergite 4 with some lateral punctures almost equivalent in size and density to lateral punctures of preceding tergites, but tergite 5 with punctures entirely larger or more sparse.

Male.—Length 14–19 mm. General appearance and pattern of markings quite similar to female except maculation slightly less extensive. Labrum, clypeus and frons devoid of appressed-silvery pubescence. Clypeus and labrum narrower than in female, basal planate area of clypeus less pronounced. *Antennae* with second flagellar segment not thickened as compared to segments distad of it; antepenultimate segment about one-third longer than its width (1.6:1.0); flagellar segments apicad of second sharply, longitudinally carinate, without evident specialized sensory areas or pits; flagellar segments 3–10 weakly excised distally on side inward to curvature of antennae; penultimate segment without inner apical process. *Legs* moderately slender; distitarsi moderately slender, widening apically, length about three times greatest width, all rather similar in form and size; anterior femora moderately slender, not dorso-ventrally thin; anterior tarsal segments 2–4 not distinctly lobed or flattened; middle femora weakly fusiform, smooth, not notched, carinate, or serrate, and without toothlike projection ventrally at apex; middle tibiae moderately slender, equal in length to middle femora; calcar of middle tibiae moderately slender, apically curved and blunt, thumblike, brownish; middle basitarsi straight, apparently terete, ventral surface beset with several (about five) evenly spaced bristles, without bunched bristles at base and without apical process; second and third tarsal segments not produced apically; posterior basitarsi slender, sub-cylindrical. *Abdomen* with seventh tergite narrowed at apex, indistinctly bilobed, dorsal preapical surface coarsely, sparsely punctate, not polished; lateral margins above spiracular lobes inflected, in part broadly groovelike, receiving dorsal margin of spiracular lobes, grooved surface bare but adjacent dorsal surface with a few long hairs and spines; spiracular lobes moderately narrow, separated across venter by twice width of either, thin but entirely sclerotized, at apex narrowing to a dorsal point; surface of spiracular lobes with only few setiferous punctures, these distad of spiracle, which is placed well before apex. *Sternites* 2–5 flat, unmodified; sixth sternite flat, apical margin weakly convex; eighth sternite with three terminal processes, median one equalling half of sternite length, lateral processes flattened, slender, discal process represented by a weak, obtusely pointed carina arising between lateral processes. *Genitalia* with parameres very slender, slightly membranous ventrally at base, ventral surface mostly rather well sclerotized and with sparse, rather long hairs; volsellae with cuspis slender, long, slightly exceeding digitus in length; digitus and aedeagus with slender, elongate heads.

This species resembles *S. tenuicornis* (Fox) in general appearance but is less extensively maculated than that species, specimens of medium maculation having a variegated, severely angulated pattern. Punctuation generally, especially on abdomen, finer and more uniform than in *S. tenuicornis*. The most broadly maculated specimens are those from Imperial Co., California. The specimens from Mexcala, Guerrero, Mexico have considerable extension

of black, with total markings perhaps about equally black and maculate in the female, and extensive black in the basal planate areas of the clypeus, on the mesonotum, tarsal segments dorsally, and first sternite at base. In addition the parameres of the genitalia are somewhat more slender than usual in these specimens from Guerrero.

Holotype male from 33 MILES EAST OF DEMING, DONA ANA COUNTY, NEW MEXICO, 4300 ft., August 2, 1946, and allotype female from Alpine, Brewster Co., Texas, July 1, 1942, both collected by H. A. Scullen, both deposited in the collections of the California Academy of Sciences, San Francisco.

Paratype material as follows.—ARIZONA: Cochise Co., Ash Canyon, Hauchuca Mts., ♂ ♀, VIII.31.51 (C. D. MacNeill, JEG); Benson, 2 ♂, VIII.8.40 (E. S. Ross, CAS); Chiricahua Mts., ♀, IX.20.49 (D. K. Duncan, CU); Chiricahua Nat. Mon., ♂, VIII.23.51 (Lloyd Martin, LACM); Douglas, ♀ (W. W. Jones, CIS); 30 mi. N. Douglas, ♂, VII.17.42, 45 mi. N. Douglas, 4950 ft., ♂, VII.31.46 (H. A. Scullen, OSC); Pearce, 25 mi. E., 2 ♂, VII.29.54, fls. *Baccharis glutinosa* (Butler-Werner, UA); Pearce, 5 mi. S., ♂, VII.28.55, on *Acacia angustissima* (G. Butler and F. Werner, UA). Graham Co., Coolidge Dam, 16 mi. E., 2500 ft., ♀, VIII.7.46 (H. A. Scullen, OSC). Mohave-Yuma Cos., Bill Williams Fork, ♀, VIII. (F. H. Snow, UK). Pima Co., Tucson, ♂, VII. (J. Bequaert, MCZ), 2 ♂, VII.12.24 (A. A. Nichol, UACAS), ♀, VII.15.41 (R. H. Grandall, UA), ♂, VIII.16.27 (P. A. Readio, UK), ♀, VIII.17.46 (H. A. Scullen, OSC), ♂ ♀, VIII.28.51 (C. D. MacNeill, JEG); ♀, VIII.29.— (F. M. Carpenter, MCZ), ♀, X.8.23 (C. D. Duncan, SJSC). Tucson, 15 mi. E., 6 ♂, 2 ♀, VIII.30.51 (C. D. MacNeill, JEG). Santa Cruz Co., Madera Cyn., Santa Rita Mtns., ♀, IX.11.51 (C. D. MacNeill, JEG). Yavapai Co., Congress Jct., 1 ♂, 3 ♀, VII. (F. H. Snow, UK). CALIFORNIA: Imperial Co., Experimental Farm, 2 ♂, V.—11, 14 ♂, 3 ♀, VI.—12, ♂ VI.6.12, on *Baccharis glutinosa*, 6 ♂, VI.—11, ♀, VI.—12 with prey *Tubifera latifrons* (Loew) (J. C. Bridwell, USNM). Riverside Co., Ripley, ♂, VIII.19.46 (P. D. Hurd, CIS); Shavers Well, ♂, IV.—34 (G. E. Bohart, GEB). KANSAS: Kearny Co., ♀, VIII.20.52, swept *Solidago* (H. E. Evans, HEE). NEW MEXICO: Dona Ana Co., Las Cruces, 30 mi. W., 2 ♂, VII.23.54 (H. E. Cott, UCD). Eddy Co., Carlsbad, 2 ♂, VIII.17.51 (H. E. Evans, HEE); Loving, ♂, VIII.16.50 (J. W. MacSwain, CIS); Malaga, ♂, VII.11.36 (M. B. Jackson, UK). Grant Co., Lordsburg, 19 mi. E., 4600 ft., 19 ♂, VIII.1.46, 15 mi. E., 4500 ft., 2 ♂, VIII.1.46 (H. A. Scullen, OSC); Separ, 3 mi. S., ♀, VIII.11.29, on *Salsola pestifer* (V. E. Romney, USNM). Hidalgo Co., Rodeo, 17 mi. N. of, 4200 ft., VIII.1.46 (H. A. Scullen, OSC). Luna Co., Deming, 20 mi. S., 4200 ft., 7 ♂, 2 ♀, VIII.2.46 (H. A. Scullen, OSC); 10 mi. E., VII.12.17 (R. C. Shannon, CU). TEXAS: Bexar Co., 2 ♂, V.25.31 (H. B. Parks, TAMC). Brewster Co., Alpine, ♀, VII.1.42, 2 ♂, VII.8.42 (H. A. Scullen, OSC); Chisos Mts., ♀, VI.10–12.08 (Mitchell

and Cushman, USNM); Dugout Wells, 2 ♂, VIII.25.54 (R. M. Bohart, UCD); Glenn Spring, 3 ♂, 9 ♀, VI.16–VII.3.28 (F. M. Gaige, UM); Santa Elena Cyn., 2145 ft., 2 ♀, VIII.25.54 (R. M. Bohart, UCD). El Paso Co., Sierra Blanca, ♂, VII.8.17 (CU); El Paso, ♀, VIII.19.54 (R. M. Bohart, UCD). Hudspeth Co., Cornudas, ♂, VIII.16.51 (H. E. Evans, HEE); Finlay, ♂, VII.2.30 (J. O. Martin, CAS); Salt Flat, ♂, ♀, VIII.16.51, on *Baccharis* (H. E. Evans, HEE). Jeff Davis Co., Ft. Davis, 10 mi. S., 1 ♂, 2 ♀, VI.30.42 (H. A. Scullen, OSC); White Rose Canyon, ♂, VI.18.47 (A. T. McClay, UCD). Midland Co., Midland, ♀, VI.6.13 (F. C. Bishop, USNM). Pecos Co., Pecos River, Sheffield, ♂, VII.26.21 (C. D. Duncan, SJSC). Presidio Co., Marfa, 4000 ft., ♂, VII.15.46, ♂, VII.30.36 (H. E. Evans, HEE); Presidio, ♀, VIII.14.29 (E. R. Tinkham, ERT). Webb Co., Laredo (inside automobile), ♀, VII.22.42 (USNM). MEXICO: Guerrero, Mexcala, 2 ♂, 2 ♀, VI.29.51 (H. E. Evans, HEE). Chihuahua, Chihuahua, 1 ♂, 2 ♀, VIII.12.51, on *Baccharis*, ♀, VIII.12.51 (H. E. Evans, HEE); Jimenez, 18 mi. W., 13 ♂, 2 ♀, VIII.10.51, on *Baccharis* (H. E. Evans, HEE); Villa Ahumada, 3 ♂, 1 ♀, VIII.14.51 (H. E. Evans, HEE). Coahuila, Paila, 3900 ft., ♀, VIII.21.47 (D. Rockefeller Exp., Cazier, AMNH).

Recorded Distribution.—Arizona: (Parker, 1917). New Mexico: Eddy Co., "Delaware Creek just north of state line" (Painter, 1932, 1936). Texas: Brewster Co., Chisolm (sic) Mts. (Parker, 1929); Glenn Springs (Steyskal, 1939); Reeves Co., 9 mi. S. of Texas-New Mexico state line on Texas Highway No. 17 (Painter, 1932, 1936); Webb Co., Laredo (Parker, 1929).

STICTIELLA TENUICORNIS (Fox)

Monedula tenuicornis Fox, 1895:368 (♀, not ♂) (Type: ♀, San Bernardino County California; Coquillett, USNM).

Stictiella tenuicornis, Parker, 1917:47 (part); 1929:43 (part).

Female.—Length 17–20 mm. *Color* black except light-yellow maculation which covers roughly more than three-fourths of total body area (compared with about three-fourths for most *S. clypeata* Gillasp). Pattern essentially that of *S. clypeata* except some expansion of maculate loci and reduction of black loci; mesonotal U always tri-partite; anterior dorso-median lobe of first tergite rounded, tongue-like, never tri-radiate; elliptic-ovate maculae of first tergite very faintly indicated by apical black; anterior dorso-median lobe of tergite 2 represented by a pair of spots which are also represented on tergites 3–6.

Structural differences from *S. clypeata*: Least interocular measurement slightly higher, between anterior ocellus and frontal pit, ratio to head width nearer one-third (1.0:2.8); punctation of mesoscutum and scutellum not uniform, having interspersed larger punctures; abdominal tergite 2 with smallest lateral punctures, exclusive of unpigmented margin, in same size and density range as those of subsutural areas of first tergite; tergite 3 with smallest punctures perceptibly but not greatly larger; tergite 4 with distinctly coarser, sparser punctures.

Male.—Length 17–19 mm. Middle femora with large notch occupying most of apical third, the notch bearing an acute, inwardly directed process at base and apex; middle basitarsi straight, apparently terete, ventral surface with single longitudinal row of bristles and with thornlike process at apex, second and third tarsal segments of this leg similarly produced; seventh tergite with sides somewhat roundly tapering to narrow, distinctly notched apex; spiracular lobes separated across venter by somewhat more than width of either; genitalia with minor differences.

Recorded Distribution.—California: San Bernardino Co. (Fox, 1895).

Neallotype (present designation): Male from CONSTANTIA, LASSEN CO., CALIFORNIA, August 2, 1951, on *Eriogonum* (J. E. Gillasp, Collector), deposited in the collections of the California Academy of Sciences.

Material examined.—CALIFORNIA: Inyo Co., Owen's Valley, ♀, VIII.7.36 (G. E. and R. M. Bohart). Los Angeles Co., Palmdale, ♂, VIII.1.35 (E. I. Beamer). Riverside Co., Santa Rosa Mt., ♂, VI.15.48 (D. J. and J. N. Knull, OSU); Whitewater, 1 ♂, 1 ♀, VII.16.50 (P. D. Hurd, CIS). San Bernardino Co., Cushenbury Springs, 2 ♀, IX.1.36, on *Lepidospartum squamatum* (Timberlake, UCR, JEG); Yucca Valley, ♂, VIII.20.36, on *Croton californicus* (Timberlake, UCR); Victorville, 1 ♂, 1 ♀, VIII.14–15.27 (CU). NEVADA: Washoe Co., Reno, ♀, VII.16.40, ♀, IX.15.40 (Ira La Rivers, JEG, UN). MEXICO: Baja California, Sierra Juarez, ♀, X.10.53 (F. X. Williams, CAS).

In Parker's key the males of this species run to *S. divergens* Parker, a form which probably should be regarded as a subspecies of *S. femorata* (Fox). Differences of *S. tenuicornis* (Fox) from *S. divergens* are in the character of the middle femora, which in *S. divergens* are longitudinally emarginate through most of their length and in addition have a small apical notch; in the size, which does not exceed 13 mm. in *S. divergens*, and in the anterior ocellus, which in *S. divergens* is distinctly broader than long. The apical notch of the femora and strongly developed discal process of the eighth sternite distinguish *S. tenuicornis* males from those of *S. clypeata* Gillasp. In the female the generally coarser, more widely spaced and less uniform punctation, specifically the coarser lateral punctation of the third and following tergites as compared with that of the first and second tergites, provides the principal character distinguishing *S. tenuicornis* from *S. clypeata*. The pair of pregradular black spots of the second abdominal tergite of *S. tenuicornis*, as compared

with the unified bar of *S. clypeata*, will also separate the females of all specimens I have seen.

These descriptions have been prepared with reference to all species considered by Parker to fall within his genus *Stictiella*, as well as certain undescribed species which differ in some respects from his generic diagnosis. Definable species groups, possibly worthy of designation as genera and/or subgenera, seem to be these: *S. pulla* (Handl.) group, [*exigua* (Fox), *argentata* (Fox), *scitula* (Fox)]; undescribed form with palpi reduced, pulvilli distinct; *S. pictifrons* (Smith) group, [*clypeata* Gillasp, *tenuicornis* (Fox), *bituberculata* Parker, *terlinguae* C. L. Fox, *bifurcata* C. L. Fox, *megacera* Parker]; *S. emarinata* (Cress.) group, [*speciosa* (Cress.), *formosa* (Cress.)]; *S. pulchella* (Cress.) group, [*plana* (Fox), *serrata* (Handl.), *melanosterna* Parker, *callista* Parker, *tuberculata* (Fox)]; and the *S. femorata* (Fox) group, [*divergens* Parker].

A few characters believed to display the phylogeny of these wasps are: form and degree of opacity of the anterior ocellus; positional and form interrelationships of clypeus, compound eyes and antennal sockets; degree of reduction of pulvilli and palpi; comparative lengths of genital cuspis and digitus; modification of the parameres from flattened, bladelike form; length of maxillae and labrum; and degree to which the vertex is depressed. The *emarginata* and *pictifrons* groups appear to represent many primitive features of the Bembicini.

K. V. Krombein of the United States National Museum kindly compared specimens of *tenuicornis* and *clypeata* with the holotype of *tenuicornis*, and H. E. Evans brought to my attention the papers by Painter.

Institutional and individual collections are abbreviated as follows: AMNH, American Museum of Natural History, New York; CAS, California Academy of Sciences, San Francisco; CIS, California Insect Survey, University of California, Berkeley; CU, Cornell University, Ithaca, New York; ERT, E. R. Tinkham, Indio, California; GEB, G. E. Bohart, Ogden, Utah; HEE, H. E. Evans, Ithaca, New York; JEG, J. E. Gillasp, Montclair, California; LACM, Los Angeles County Museum, Los Angeles, California; MCZ, Museum of Comparative Zoology, Cambridge, Massachusetts; OSC, Oregon State College, Corvallis; SJSC, San Jose State College, San Jose, California; TAMC, Texas

Agricultural and Mechanical College, College Station, Texas; UA, University of Arizona, Tucson; UCD, University of California at Davis; UCR, University of California at Riverside; UK, University of Kansas, Lawrence; UM, University of Michigan, Ann Arbor; UN, University of Nevada, Reno; and USNM, United States National Museum, Washington, D.C.

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A RECORD OF PYRAMIDOBELA ANGELARUM KEIFER FROM SANTA CRUZ, CALIFORNIA (Lepidoptera, Ethmiidae)

Pritchard and Powell¹ have recorded this species from San Mateo County, Alameda County and Contra Costa County, California. In the collection of the author are two specimens reared from *Buddleia* sp. from within the city of Santa Cruz, Santa Cruz County. The emergence date is September, 1947. The larvae were taken from rolled up leaves at the tips of the food plant, and the infestation was heavy, most of the tips being affected, indicating that the moth must have been well established. This note is presented as another link in the distribution of this moth, which seems to follow plantings of its introduced host plant.—J. W. TILDEN, *San Jose State College, San Jose, California*.

¹Pritchard, A. E., and J. A. Powell, 1959. Pan-Pac. Ent., 35(2):82.